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Taking Stock: The Import of European Livestock into Virginia and its Impact on Colonial Life

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TAKING STOCK: THE IMPORTATION OF
EUROPEAN LIVESTOCK INTO VIRGINIA
AND ITS IMPACT ON COLONIAL LIFE

A Thesis

Presented to

The Faculty of the Department of History
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree of
Master of Arts

by

Louise Horowitz Tincher

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APPROVAL SHEET

This thesis is submitted in partial fulfillment of
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ABSTRACT

This thesis concerns the introduction of European domestic animals into colonial Virginia, and the implications for English and Indian communities in the area.

Cattle, swine, horses, goats, and sheep were introduced into Virginia by English planters in the early seventeenth century. According to contemporary sources, these animals were essential to the survival of the English colony at Jamestown.

The husbanding of domestic livestock, a common European practice, was virtually unknown in pre-Columbian America. The importation of these species into the Chesapeake region produced ecological changes which favored English settlers, while working to the detriment of indigenous peoples.

Imported European livestock played an important and easily overlooked role in the Anglo-Indian struggle for control of Virginia.

TAKING STOCK: THE IMPORTATION OF
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CHAPTER I
ENGLISH TRADITIONS: THE CULTURE AND
ECONOMY OF TUDOR-STUART ENGLAND

The European adventurers who founded Virginia came, for the most part, from England. The land they left behind was experiencing a golden age. The reign of James I (1603-1625) added Scotland to the English crown in a remarkably peaceful manner, just as the rule of Henry VII (1485-1509) had secured Wales.¹ The destruction of the Spanish navy in 1588 left England secure from the armies of southern Europe.² European artisans, fleeing the turmoil on the continent, contributed to the development of the English textile industry.³ In 1600 England lay poised to throw herself into the lucrative American trade.

In The World We Have Lost: England Before the Industrial Revolution (1973) social historian Peter Laslett has sketched a demographic portrait of Tudor-Stuart England. The population of the British Isles rose sharply in this period, from five million in 1500 to nine million in 1700.⁴ By the end of the seventeenth century England contained five million people.⁵ London swelled from a city of 70,000 in 1500, to 250,000 in 1600, and 600,000 in 1700.⁶ However, London was an unusual case, and not representative of

conditions in the country as a whole. Seventeenth-century England contained only four urban centers of 20,000 or more; London, Bristol, Norwich, and York.⁷

The bulk of the population resided in towns and villages. Less than 12% of all Englishmen crowded into the cities, 75% lived in communities of 700 people or fewer.⁸ England remained shackled to an underdeveloped economy until well into the sixteenth century, long after she had slipped the bonds of the feudal political and social order.⁹ While seventeenth-century Englishmen were relatively free to change residence or occupation at will; the vast majority were still directly involved in agriculture. Low productivity, storage problems, and a fragmented distribution system kept most of the population chained to the land.

The countryside was dotted with small agricultural settlements, where farming was by far the most common occupation.¹⁰ According to economic historian Carlo Cipolla's figures in Before the Industrial Revolution: European Society and Economy, 1000-1700 (1976), 46% of the men of Gloucestershire were farmers in 1608.¹¹ This figure alone does not reflect the full size of the agricultural work force. Women and children frequently labored alongside men in the fields.¹² Cipolla estimates that a minimum of 65% of the population of pre-industrial England was employed in agriculture at any given time.¹³

Land was a critical factor of production in pre-

industrial Europe.¹⁴ Population growth spurred demand for foodstuffs and the farmland that produced them, creating a sellers' market for these commodities. Unfortunately, despite a flurry of attempts to augment Britain's farmland by draining fens and marshes, her arable acreage was quite limited.¹⁵ Faced with a shortage of cheap land, the offspring of landless peasants were pushed out of, or fled, farming. These poor cottagers and laborers earned a living as servants or craftsmen, many joined the burgeoning textile trades.¹⁶

Twenty-three percent of the men of Gloucestershire were employed in the clothing trades in 1608.¹⁷ In contrast, the only other occupation to claim more than 7% of the county's men was farming.¹⁸ The English cloth trade was centered in the East Anglian counties of Norfolk, Suffolk, and Essex in the seventeenth century, but colonies of textile workers lay scattered throughout the kingdom.¹⁹ Rural villagers carded, spun and wove raw wool into cloth, while townsmen bought and sold the finished product.²⁰ As the number of Englishmen engaged in manufacturing and trade grew, the percentage in agriculture shrank accordingly.

Seventeenth-century English farmers faced the challenge of feeding a growing population. The bulk of the food supply in Tudor-Stuart England came from a half a dozen crops--oats, barley, wheat, rye, field peas, and beans.²¹ The average man consumed most of his calories in the form of porridges, puddings, and breads prepared from these

staples.²² Farmers concentrated their energy on growing a mere handful of grains and pulses.²³ They harnessed domestic animals to boost production of familiar staple crops, as well as new agricultural commodities.

Anthony Fitzherbert, Derbyshire landowner, lawyer, and author of the Book of Husbandry (1534), recognized the importance of livestock to farmers. He noted that "A husband cannot well thrive by his corn, without he have other cattle,... For else he shall be a buyer, a borrower, or a beggar."²⁴ Fitzherbert and his contemporaries used the word "cattle" broadly, to denote sheep, goats, horses, pigs, and oxen. These animals cleared land, plowed and manured fields, and carted goods to market, conserving valuable human labor. In addition, domestic stock produced milk, meat, wool, hides, and tallow for consumption at home or sale abroad.

In English Peasant Farming: An Agrarian History of Lincolnshire From Tudor to Recent Times (1957) Joan Thirsk has drawn a statistical picture of English agriculture. The species "bos taurus", also known as oxen, and neat, or horned cattle, was essential to this system. According to Thirsk, the average Lincolnshire farmer owned between nine and twelve neat cattle in 1530.²⁵ Over the next two hundred years English husbandry changed dramatically, but oxen retained their popularity as agricultural animals.²⁶ Farmers liked cattle because they were multi-purpose beasts which could be used for plowing, carting, and dairying, and

then slaughtered for meat and hides when past their prime.²⁷

Cattle were relatively hardy and cheap to maintain.²⁸

In summer kine pastured on fallow land and wastes, and after harvest they grazed on field stubble.²⁹ When forage grew scarce in winter and early spring, English farmers furnished their oxen with straw or hay made from coarse grasses.³⁰ If these supplies ran short, stock owners resorted to cutting brush and tree limbs to feed their starving beasts.³¹ From Christmas until May malnutrition rendered cattle weak and lethargic, and an odd assortment of tonics--including salt, vinegar, wine, ale, garlic, spices, and a live frog--were recommended to fortify the animals for the critical spring plowing.³²

Sixteenth and seventeenth-century agricultural writers endorsed the use of supplemental feeds to strengthen draught animals. Thomas Tusser, who penned Five Hundred Good Points of Husbandry (1557) after an abortive attempt at farming in East Anglia, advised readers, "Be sure of hay and of provender some, for laboring cattle, till pasture be come."³³ Furthermore, he warned, "Who abuseth his cattle, and starves them for meat, by carting or plowing, his gain is not great."³⁴ Samuel Hartlib, in His Legacy: or an Enlargement of the Discourse of Husbandry used in Brabant and Flanders (1652), urged Englishmen to adopt the Dutch custom of foddering domestic animals on turnips and rapeseed.³⁵ Other enterprising farmers experimented with grains, pulses, vetches, clovers, and sweet grasses as stock

feeds.³⁶

As the practice of sowing special fodder crops caught on, cattle feeds became more plentiful and more nourishing. Recent studies have shown that improvements in human nutrition are linked with increases in height, weight, fertility, and resistance to infectious diseases. Similarly, improvements in animal nutrition would have paid dividends in the form of larger, healthier, more productive livestock. Changes in livestock husbandry may have been a major factor in raising agricultural yields, spurring economic growth in pre-industrial Europe.³⁷ Both Tusser and Fitzherbert observed that robust well-fed cattle performed better at plowing, carting, and milk producing than puny underfed beasts.³⁸

Changes in husbandry yielded a larger and better food supply for England's growing human population. Dairy products were an important source of animal protein in the seventeenth-century Englishman's diet.³⁹ Plowing began as soon as calves were weaned, in April or May, and continued through October.⁴⁰ Housewives and maid-servants collected the milk, separated out its fats and solids, and processed them into butter and cheese.⁴¹ The perishable buttermilk that remained after skimming was drunk fresh, or fed to livestock.⁴² Cheese, or white meat, stayed wholesome for long periods of time, and could be eaten by the household, or sold at market.

Although cattle were the most popular milch animals,

some English farmers included sheep in their dairies. Fitzherbert noted that poor highlanders milked their ewes, a practice which he personally frowned upon.⁴³ Tusser waffled on the issue, first endorsing a mixed dairy herd of cattle and sheep, and then conceding that either species might be profitable in skilled hands.⁴⁴ The Whole Art of Husbandry Contained in Four Books (1631) by Gervase Markham, a work of continental origin, stated that ewe's milk contained more fat than cow's milk.⁴⁵ If Markham was correct, then ewe's milk would have yielded proportionately more butter and cheese, making sheep attractive milch animals.

However, sheep dairies languished for a variety of reasons, including the fact that ewe's milk was difficult for humans to digest, and the high value placed upon lambs.⁴⁶ Indeed, Fitzherbert called sheep "the most profitable cattle that any man can have," a sentiment echoed by Leonard Mascall in The Government of Cattle (1620).⁴⁷ Fitzherbert objected to the milking of ewes because it hindered breeding and thus interfered with his primary goal of building up a large herd.⁴⁸ Nor was he alone in this pursuit; according to Thirsk the size of the typical Lincolnshire sheep herd more than doubled between 1500 and 1700.⁴⁹ The number of small herds of less than fifty animals, declined in this period, while large herds of more than fifty animals became common.⁵⁰

Sheep-raising on this scale was restricted to wealthy farmers, who could afford substantial investments in stock,

land, and labor.⁵¹ Shepherds were needed to guard the helpless sheep from dogs, swine, and vagabonds.⁵² In winter the herdsmen foddered their charges or grazed them in special pastures and guided them to shelter in hedges or sheepcotes.⁵³ In summer the folded flocks required regular inspections for parasites and contagious diseases.⁵⁴ The pay-off for this Sisyphean labor came in June, when the sheep were washed and shorn of their fleeces, which were then sold for a tidy profit.⁵⁵

Savvy agricultural entrepreneurs built up huge herds of sheep to satisfy the growing demand for wool. Wool was a major English export in the sixteenth and seventeenth centuries.⁵⁶ Despite a decline in demand from the continent after 1550, woollen manufactures still accounted for 48% of England's export trade as late as 1700.⁵⁷ Sheep also furnished manure, hides, tallow, mutton, and milk, but these were secondary products whose appeal paled beside the golden lure of the animals' fleeces. Tudor-Stuart farmers found sheep to be worth far more on the hoof as wool producers than in the pot as mutton.

In contrast, swine had to be slaughtered to obtain the pork, bacon, sausage, lard and hides for which they were raised. Because swine-herding required a smaller initial investment than sheep-herding, it remained attractive to poor and middling peasants. Fitzherbert included swine in a list of "those things that most profit rises of in the shortest space, with the least cost."⁵⁸ Swine were prolific

and quick to mature: sows farrowed two to three times a year, with five to sixteen piglets per litter.⁵⁹ One sow could easily produce a herd of ten to twenty grown hogs within twelve months.

In spring and summer the pigs were turned loose to forage on wastes and commons, where they fed on fruit, nuts, ferns, roots, grasses, and worms.⁶⁰ In September the grown hogs were penned for brawning, or fattening, on mast and peas before slaughter in November.⁶¹ Only breeding animals were kept through the winter. This schedule spared farmers the expense of prolonged feeding, for as Tusser noted "stall-fed and pease-fed play pickpurse the thief."⁶² Fitzherbert, Markham, and Mascall joined Tusser in endorsing swine-herding as a profitable endeavor for English farmers.⁶³ Nevertheless, Thirsk's data indicates that a decrease in pig-keeping occurred in Lincolnshire during the seventeenth century.⁶⁴

Changes in land ownership and land-use patterns contributed to the decline of swine-herding in seventeenth-century England. The sale of church and crown lands to private owners, who developed them into plowland and pasture, cut up the wastes where livestock foraged.⁶⁵ Farmers consolidated scattered strips of plowland into compact easily fenced fields, which were not available for common grazing after the harvest or during fallow seasons.⁶⁶ At the same time, the decline of England's forests meant smaller harvests of wild fruits and nuts to fatten swine.⁶⁷

Landless farmers were no longer able to feed any livestock, while prosperous farmers preferred sheep and cattle to swine.

Goat-herding, like pig-keeping, appears to have declined under the Tudors and Stuarts. Goats were hardy creatures that thrived with little care from their owners. Mascall commented that goats were "nourished almost of nothing chargeable," but even he admitted that they were destructive animals, best suited to wastes and marshes and "not so meet to be about houses as sheep."⁶⁸ Tusser and Fitzherbert did not mention goats at all, even to speak against them. This negative evidence argues that goat-herding had already fallen out of favor in parts of England by the early sixteenth century.

Horses, on the other hand, gained popularity as draught animals in this period. Lincolnshire farmers owned an average of four to six horses by 1530, and the use of horse-plows increased in the region during the sixteenth and seventeenth centuries.⁶⁹ Horses plowed more quickly than oxen in light soils and on level ground, but they were not as effective in heavy soils and on hilly terrain.⁷⁰ In addition, Tusser and Fitzherbert noted that horses required more care and expense in keeping than cattle.⁷¹ Horse-hoeing caught on slowly, remaining a novelty in some areas of England well into the eighteenth century.

A variety of other domestic animals also contributed economically valuable labor and goods. Dogs were employed

extensively in hunting game, driving stock, and guarding property. Cats patrolled vermin-infested dwellings, protecting food stores. Poultry furnished eggs and feathers, bees honey, and rabbits meat and furs. Donkeys were used for transportation, although not as commonly as oxen and horses. Wealthy men and women collected exotic beasts for diversion, while poor men watched bear-baitings and dog-fights. Domestic animals were an integral part of life in Tudor-Stuart England.

It is difficult to imagine pre-industrial England without her ubiquitous domesticates. In 1688 demographer-economist Gregory King estimated the value of England's domestic animals at £ 25 million --more than twenty-two percent of the nation's capital.⁷² Farmers, who comprised more than half of the total population, measured their wealth in terms of land and livestock.⁷³ The cow in the manger and the pig at the trough were fitting symbols of England's domestic prosperity in the sixteenth and seventeenth centuries.

CHAPTER II

INDIAN TRADITIONS: THE CULTURE AND ECONOMY OF PRE-COLUMBIAN VIRGINIA

In the Old World man had been practicing livestock husbandry for more than ten thousand years.⁷⁴ The economic importance of domestic animals, documented in the last chapter, was reflected in European mythology. Man's exploitation of the beasts was justified by the biblical injunction for man to "have dominion over...the fowl of the air, and over the cattle and over all the earth."⁷⁵ Stories of the Old Testament patriarchs celebrated the nomadic herdsman's way of life.⁷⁶ Livestock were an integral part of the European cultural complex.

The aborigines of the New World inherited a different collection of cultural baggage concerning the relationship of man and beast. As a result, seventeenth-century American animals were, for the most part, free-roaming game animals. Compared to Europeans, American Indians kept little domestic stock. William Strachey, who visited Virginia in 1610, considered the natives' lack of livestock remarkable. In his History of Travel into Virginia (1612) Strachey reported that the local Indians "neither do impale for deer, nor breed cattle, nor bring up tame poultry,...nor keep birds,

squirrels, nor tame partridges, swan, duck, nor geese."⁷⁷

The aborigines' way of life appeared inexplicable to Europeans, some of whom attributed the Americans' oddities to feeble-mindedness. In A Brief and True Report of the New Found Land of Virginia (1590) Thomas Harriot, who visited Roanoke in 1585-1586, defended the natives from this charge. Harriot maintained that despite their apparent poverty the Indians were "very ingenious." He noted that "although they have no such tools, nor any such crafts, sciences, and arts as we, yet in those things they do, they show excellency of wit."⁷⁸ Actually, the Indians who greeted Harriot and his fellow adventurers belonged to not one, but three distinct groups.

First and foremost came the Algonquian-speaking peoples, who dominated the mid-Atlantic region from the coast to the fall line.⁷⁹ The natives of Roanoke were part of this group, as were the Chickahominys, Mattaponis, Nansemonds, Pamunkeys, and Powhatans.⁸⁰ Anthropologist Christian Feest presents thumbnail sketches of these tribes in his essay the "Virginia Algonquians" (1978). They lived in semi-permanent villages which generally contained fewer than a thousand individuals.⁸¹ Hunting, gathering, fishing, farming, and trade sustained the Algonquian economy.⁸² English settlement of the Chesapeake proved disastrous to these Indians, who were reduced to tributary status by the mid-seventeenth century.⁸³

South of the James River, Iroquoian-speaking tribes

controlled the area from the fall line to the piedmont.⁸⁴ The Tuscarora, Nottoway, and possibly the Meherrin, Neusiok, and Coree Indians belonged to the Iroquoian family.⁸⁵ According to Douglas Boyce's anthropological study "Iroquoian Tribes of the Virginia-North Carolina Coastal Plain" (1978), these Indians relied more heavily on hunting and gathering wild foods than did their Algonquian neighbors.⁸⁶ During the summer they inhabited scattered agricultural settlements, just below the fall line; in winter they moved inland to hunting quarters near the mountains.⁸⁷ Iroquoian territory in Virginia and North Carolina was seized by the English in the late seventeenth and early eighteenth centuries, despite armed resistance from the natives.⁸⁸

The piedmont region of Virginia was also home to an isolated group of Siouan speakers: the Catawba, Monacan, Occaneechi, Saponi, and Tutelo.⁸⁹ Douglas LaToll Rights, author of The American Indian in North Carolina (1947), suggests that some of these tribes were pushed out of Florida by the Spanish, and moved north into the Carolinas and Virginia in the sixteenth century.⁹⁰ The Siouans were famous hunters, but they also gathered wild foods, and planted crops near their riverbank villages.⁹¹ Virginia's Siouan population declined rapidly in the seventeenth century; these Indians melted away before the planters' eyes.⁹²

The Chesapeake region should be considered as a whole,

rather than split along arbitrary lines imposed by Europeans. The Algonquians of the mid-Atlantic coast exhibited a cultural continuity born of common ancestry and nurtured by a shared environment.⁹³ The Siouan tribes of the southern piedmont also shared a similar heritage and habitat.⁹⁴ Virginia's Iroquoians remain more problematic because little information about them survives. One alternative to studying them directly is to examine descriptions of their kin, the Cherokee and Susquehannock.⁹⁵ For all of the above reasons, information on the natives of the adjacent colonies of Maryland and North Carolina has been included in this study.

In the absence of domestic stock, these neighboring Indians relied upon wild animals to supply many of life's necessities. Game furnished meat, the main source of animal protein in the native diet, and skins, which composed the bulk of the natives' clothing.⁹⁶ American aborigines used every part of the carcass: hooves were boiled down for glue, teeth and bones became tools, sinews served as thread.⁹⁷ Surplus meat and skins were carefully preserved.⁹⁸ Wild beasts constituted a critical resource for these peoples.

Thomas Harriot and John White, members of the Grenville expedition to Roanoke in 1585-86, recognized the role that game played in the local economy. Harriot's account of the Algonquian village of Secota included a hunting territory, "groves wherein they take deer," among the town's assets.⁹⁹ A sketch of the scene by White shows a community of some

eighteen houses set in a clearing, bordered by cultivated fields on one side and nestled into forest on the other. Two hunters with drawn bows stand poised at the edge of the woods, behind low-growing shrubs, which hide them from the deer feeding nearby. The hunters and their quarry are not separated in time or space from the village, they are merely another facet of village life.¹⁰⁰

Hunting was an integral part of the Indian lifestyle, and aboriginal cultures reflected this fact. Captain John Smith, a resident of Jamestown from 1607 to 1609, noted the high value placed by the natives on hunting skills. In The General History of Virginia (1624) Smith remarked that "in their hunting and fishing [the Indians] take extreme pains; yet... they esteem it a pleasure and are very proud to be expert therein."¹⁰¹ Hunting lore was passed from one generation to the next through legends and folk tales, as well as formal instruction. In "Sacred Formulas of the Cherokee" (1885-86) ethnologist James Mooney recorded myths explaining the relationship between man and the animals. In these tales the Indian hunter is enjoined to approach his prey with due caution and respect.¹⁰²

After the hunt, the animal's carcass had to be disposed of properly. Robert Beverley, a planter, noted in The History and Present State of Virginia (1705) that the aborigines sacrificed the first fruits of the hunt as a burnt offering to their gods.¹⁰³ John Lawson traveled among the natives of North Carolina from 1700 to 1708, and

observed a similiar custom. In his History of North Carolina (1714) Lawson wrote that "the young hunter never eats of that buck, bear, fish, or any other game, which happens to be the first they kill of that sort."¹⁰⁴

Beverley and William Byrd, another Virginian, also mentioned an Indian taboo on cooking different types of game together.¹⁰⁵ These rituals and taboos surrounding the hunt underscored the seriousness of the occasion.

The aborigines' approach to exploiting wild fauna employed neolithic technology, yet was refined and adapted to fit diverse environments. Each tribe utilized a variety of hunting methods, allowing the individual freedom to choose from this repertoire a strategy tailored to his immediate situation. English explorers noted familiar ways of hunting in use among the Indians, as well as distinctly American innovations. New World archery fell into both categories, recognizable to English eyes, but strangely different in some aspects. Fire-hunting, on the other hand, was a novelty.

American Indians employed fire in several types of chases, but the term "fire-hunt" refers specifically to a group hunt or drive undertaken in the fall of the year. Henry Spelman, who lived with the Algonquians of the Chesapeake region from 1609 to 1611, described a Potomac fire-hunt in his Relation of Virginia (1609).¹⁰⁶ John Lawson witnessed similar hunts by the aborigines of North Carolina in the early eighteenth century.¹⁰⁷ These drives

were undertaken for skins rather than meat.¹⁰⁸ A single day's fire-hunt could net anywhere from six to fifteen deerskins, a full month's work for a man hunting alone.¹⁰⁹

The fire-hunt was a social event, as many as three hundred Indians might cooperate in a single drive.¹¹⁰ The natives began at dawn, igniting dead leaves and undergrowth that lined the forest floor. Smoke and noise from the fire drove woodland animals into narrow necks of land or enclosures, where they were shot and clubbed to death.¹¹¹ The fire-hunt also played an important part in the Indians' system of land management. Firing the woods spurred the growth of tender new foliage that attracted grazing animals; regular burnings cleared the forest of dense undergrowth that would have impeded hunters and supported larger, more catastrophic fires.¹¹²

Another New World innovation was the manufacture of stalking heads. A stalking head was a deer's head, carefully dried and stuffed, with the skin still attached. This was used to disguise a solitary hunter as he crept up on grazing deer in the forest.¹¹³ John Smith saw the natives of the Chesapeake hunting with stalking heads in the early seventeenth century, and John Lawson witnessed the same thing in North Carolina a hundred years later.¹¹⁴ Smith also mentioned that the aborigines employed snares or traps to take beaver and otter, while Thomas Harriot noted that they treed bears before shooting them.¹¹⁵

Beaver, otter, bear, and deer were hunted primarily for

their pelts. Both Hariot and Smith observed that the Indians' clothing consisted mainly of animal skins.¹¹⁶ Deer, bear, wolf, and buffalo hides were prized for large robes or matchcoats; the skins of smaller beasts were pieced together to form garments.¹¹⁷ When the supply of hides ran low, the natives covered themselves with grass and leaves, using whatever was at hand to breech the gap.¹¹⁸ William Strachey noted that while upper class Indians wore mantles and aprons, "the common sort have scarce wherewith all to cover their nakedness."¹¹⁹

If the Indians' clothing sources were somewhat precarious, their food supply rested on much firmer ground. Aboriginal eating patterns are best described as omnivorous. Although each tribe or kin group maintained its own dietary taboos, almost every plant and animal native to the Americas was eaten at some time by some Indians. This broad-based subsistence economy, typical of modern hunter-gather societies, was one of the strengths of the aboriginal lifestyle. The Indians dined on a wide variety of animal species.

When English explorers compiled lists of creatures sighted in the New World and animals eaten by the natives, the two lists were often synonymous.¹²⁰ Thomas Hariot wrote that deer, rabbit, muskrat, squirrel, and bear appeared regularly in the aborigines' diet. He added that wild cats and wolves were also eaten, "which I have not set down for good meat, lest some would understand my judgement therein

to be more simple than needeth."¹²¹ John Smith concluded his Virginia bestiary with the observation that "of all those beasts [the Indians] use to feed, when they catch them."¹²² However, this list was but the tip of the proverbial iceberg.

The aborigines of Virginia ate fish as well as flesh. John Whites' drawings show the tidewater Algonquians fishing from canoes and afoot, in the shallows along the coast, using spears, nets, and weirs.¹²³ John Smith observed that the Indians of the Chesapeake fed heavily on fish and shellfish, especially during the spring and summer.¹²⁴ Spring spawning runs brought many species inland to Iroquoian territory, where they were caught and dried for later use.¹²⁵ John Lawson reported that the natives of North Carolina ate "fish of all sorts," including "tortoise" and "terrapiin, shellfish, and sting ray, or skate."¹²⁶

The marshlands also teemed with fowl, attracting flocks so vast as to cut off the light of day.¹²⁷ Thomas Hariot claimed to have sighted turkeys, doves, partridges, cranes, herons, swans, and geese in the vicinity of Roanoke in 1584 and 1585.¹²⁸ These birds furnished the raw materials for the Indians' feather matchcoats, described by John Smith as "prettily wrought," and by John Lawson as "extraordinary charming."¹²⁹ Lawson also noted that the natives kept large stores of pigeon fat, which they ate "as we do butter."¹³⁰ Clearly, wild fowl were important to the native diet.

Vegetables were another edible resource, both wild and

cultivated species. Wild plant foods of the American Indians included nuts, herbs and roots. John Smith wrote that the Indians of Virginia ate large amounts of acorns, walnuts, strawberries, mulberries and tuckahoe root.¹³¹ According to John Lawson, the natives of North Carolina gathered and ate wild fruits, peaches, ground nuts, and acorns.¹³² These were consumed fresh in summer and stored for winter use.¹³³ Although these crops were not actually sown by the Indians, aboriginal land management practices encouraged their growth, and seasonal harvests of wild plant foods formed a regular part of the native food supply.

Last but not least came the Indians' domesticated plant foods, especially corn. Archaeological evidence shows that domesticated corn, or "zea mays", was present in the New World as early as 3000 B.C.¹³⁴ Thomas Harriot and John White saw aborigines near Roanoke growing maize in the late sixteenth century.¹³⁵ Botanist Herbert Baker believes that these natives grew a high yield variety of maize, known today as dent corn.¹³⁶ Christian Feest claims that the Indians of North Carolina cultivated three types of maize, including flint corn.¹³⁷ When ripe, the grain was dried and ground into meal for use in mush, cakes, and rockahominy.¹³⁸

In addition, the Indians of Virginia raised beans, squashes, sunflowers, and tobacco.¹³⁹ Surpluses were regularly produced and stored for later use or trade.¹⁴⁰ Feest estimates that 25% of the Virginia Algonquians' food supply came from domesticated plants.¹⁴¹ Other sources

consider this figure too low.¹⁴² The diversity of the aboriginal economy has tended to obscure the fact that many American Indians were skilled agriculturalists prior to European contact.

CHAPTER III
THE ENGLISH IN VIRGINIA:
COLONIAL LIVESTOCK HUSBANDRY

England did not enter the race for American colonies until relatively late, almost one hundred years behind the Spanish. The founding of settlements at Roanoke in 1584 and Jamestown in 1607 established an English foothold in North America.¹⁴³ Initially these outposts were too weak to survive in the face of native resistance. By 1590 the colony at Roanoke had disappeared, probably a victim of intertribal warfare.¹⁴⁴ Jamestown's longevity was due in part to a series of alliances between the English and neighboring tribes, but life in the colony remained precarious.¹⁴⁵

In 1671 governor William Berkeley wrote "there is not often unseasoned hands (as we term them) that die [now], whereas heretofore not one of five [colonists] escaped the first year."¹⁴⁶ Jamestown was haunted by the twin spectres of disease and starvation. Fevers, dysentery, and nutritional deficiencies carried off large numbers of immigrants.¹⁴⁷ Famine stalked the colony during the "Starving Time" in the winter of 1609-1610. Since little could be done to control disease outbreaks, the settlers

concentrated their efforts on securing a reliable food supply.

The adventurers learned to eat native American plants and animals, such as maize, wild turkey, and deer. Friendly Indians taught the English to identify local food species and to prepare them for the table. Although the colonists procured some food for themselves, they also obtained significant amounts of maize and meat through trade with the aborigines.¹⁴⁸ Thus the settlers remained vulnerable to hostile natives, who could, and did, cut off trade with the colony. The English responded with a variety of schemes designed to make the planters self-sufficient by developing colonial agriculture.

Unfortunately, while promotional pamphlets stressed the resources of the Chesapeake, its deficiencies were equally glaring. Aboriginal Virginia boasted an abundance of exotic plants and animals, but few of the staples of traditional English agriculture. Visitors such as William Strachey commented on the lack of cattle, swine, sheep, horses, and domestic poultry in the region in the early seventeenth century.¹⁴⁹ The English became preoccupied with establishing these Old World species in the Chesapeake.¹⁵⁰ Many agreed with John Pory, secretary of Virginia, who wrote in 1619 that, "three things there be which in a few years may bring this colony to perfection; the English plough, vineyards and cattle."¹⁵¹

Imported animals served as allies to the English in

their campaign to subdue a strange and often hostile environment. Domestic beasts functioned as land-clearers and food-producers, conserving valuable human labor.¹⁵² Promises of land and livestock lured English farmers to the Chesapeake.¹⁵³ The directors and officers of the Virginia Company of London, the colony's commercial backer, recognized the importance of domestic animals to their venture. A large portion of their time and money was devoted to securing breeding stock for the colony. Domestic beasts assumed a priority among cargo bound for Virginia.

The early expeditions to found Jamestown carried livestock for the colony.¹⁵⁴ John Smith wrote that the settlement had "six mares and a horse, five or six hundred swine, as many hens and chickens, some goats, [and] some sheep" when he left for England in 1609.¹⁵⁵ These animals perished in the "Starving Time" the following winter, but fresh stocks were quickly obtained. In the spring of 1610 Thomas West, the third Lord Delaware, brought milch cows from England, and George Somers was dispatched to Bermuda to capture wild hogs left behind by the Spanish and bring them to Virginia.¹⁵⁶ The third supply, which arrived in 1611, contained nine shiploads of men, provisions, and livestock to bolster the plantation at Jamestown.¹⁵⁷

These shipments of domestic beasts represented a sizeable investment by Virginia Company stockholders. Company officials were understandably concerned about the animals' fate.¹⁵⁸ They cautioned colonists to preserve

their beasts for breeding purposes, keep them in herds, and guard them well.¹⁵⁹ Letters from the planters to company directors in London contained regular inventories of their livestock and notes on animal husbandry in the colony.¹⁶⁰ Most reports indicated that the transplanted stock thrived, reproducing freely in the Chesapeake.¹⁶¹

According to William Simmonds' The Proceedings of the English Colony in Virginia, a second-hand account of life in the settlement published in 1612, swine flourished. Simmonds wrote that three sows produced sixty pigs in a year at Jamestown, a healthy rate of increase for English swine in this period.¹⁶² Swine and goats were easily naturalized into the American environment, where they went, so to speak, hog wild.¹⁶³ The feral nature of these animals made it difficult to keep track of them. By the 1620s swine and goats were simply taken for granted or listed as "innumerable" in colonial inventories.¹⁶⁴

Cattle took longer to adapt to their new home. Not until 1611 could Thomas West, governor of Virginia, write that "the cattle already there, are much increased, and thrive exceedingly...many of them ready to fall with calf."¹⁶⁵ Initially, despite persistent efforts to encourage importing and breeding of cattle, the planters' pool of kine refused to rise above one thousand head.¹⁶⁶ The tide finally turned in the 1620s, when the Virginia Company contracted with private investors to supply the needs of the settlers. The supply of neat cattle in the

colony quickly rose into the thousands.¹⁶⁷ Soon a steady stream of neat cattle was flooding the English plantations and spilling out into the hinterlands.

While horses were introduced into the Chesapeake as early as 1609, they did not appear in significant numbers until the mid-seventeenth century.¹⁶⁸ Court records from Accomack and Northampton Counties indicate that during the 1640s and 1650s horses were rarer and more highly valued than cattle.¹⁶⁹ The exportation of mares from Virginia was prohibited as late as 1662.¹⁷⁰ During the 1660s the colony's supply of horses increased rapidly and the situation soon eased. By 1669 the legislature had reversed itself, allowing the export of horses and mares while forbidding their importation.¹⁷¹

Sheep were also slow to take root in the colony. Even promotional writer John Hammond, author of "Leah and Rachel, or the Two Fruitful Sisters Virginia and Maryland" (1656), admitted that sheep were scarce in the Chesapeake in the early seventeenth century.¹⁷² A survey of Virginia's eastern shore commissioned in 1660 counted a total of 1714 sheep belonging to 107 individuals, "many having but one or two."¹⁷³ The Anglo-Dutch wars of the 1650s and 1660s, which interrupted trade and cut off the planter's supply of English woollens, may have spurred sheep-raising in the colony.¹⁷⁴ John Clayton, travelling in Virginia in 1694, found that "most persons of estate begin to keep flocks."¹⁷⁵

Although plagued by chronic labor shortages, the

planters took great care to preserve their domestic beasts. In 1611, under the direction of Governor Thomas Dale, they built a stable and blockhouse to protect livestock on Jamestown Island.¹⁷⁶ At first, the animals grazed freely in woods and marshes surrounding the English settlement.¹⁷⁷ Later, Hog Island in the James River was set aside as a refuge for the imported beasts and a community cowherd was appointed to watch over them.¹⁷⁸ A series of edicts issued by Governor Samuel Argall in 1618 and 1619 ordered the planters to guard their livestock, gather hay to feed them, and break oxen to the plough.¹⁷⁹ Stealing, butchering and exporting domestic beasts were declared criminal acts.¹⁸⁰

Despite these measures, Virginia continued to suffer from a shortage of livestock due to the growth of the English settlements. Jamestown, founded by 144 adventurers in 1607, was soon a thriving village.¹⁸¹ The Virginia Muster of 1625 counted 1,218 planters, and the colony's population increased rapidly after 1625.¹⁸² There were approximately 30,000 English settlers in Virginia by 1660, and 60,000 by 1700.¹⁸³ Many of these people were new immigrants, who entered the colony at the rate of roughly 1,500 a year in the late seventeenth century, generating a growing demand for livestock.¹⁸⁴

The Virginia Company responded to this demand by formulating a new policy. In 1619, under the leadership of Sir Edwin Sandys, the company proposed to supply twenty heifers for every hundred new immigrants to the colony.¹⁸⁵

More than one hundred cattle were sent to Virginia in 1620. Additional supplies of 400 goats, 800 asses, 20 mares, and 200 kine were planned but no record of actual shipment survives.¹⁸⁶ In the end costs proved prohibitive, forcing the company to abandon the plan in 1621.¹⁸⁷

The 1620s saw the end of the Virginia Company's monopoly on trade with the Chesapeake and of Jamestown's communal stocks. By this time the colony was well rooted, but its parent company was failing fast. Although no longer capable of furnishing Virginia with supplies, the company directors did not abandon the settlement completely. They arranged for critical goods to reach Virginia by licensing other merchants to buy and sell in the colony. British entrepreneurs in Ireland now turned their eyes to the Chesapeake, where opportunity beckoned.

From 1620 to 1625 the Cork Company was active, shipping cattle from Ireland in exchange for Virginia tobacco.¹⁸⁸ Daniel Gookin of Cariggaline, Ireland also entered this trade, selling cattle personally and through his agent, Thomas Wood.¹⁸⁹ Backers of the colony feared that the Crown Acts of 1621, restricting the tobacco trade to English ports, would spell the end of these shipments.¹⁹⁰ However, they appear to have continued unabated. Opening Virginia to private enterprise began a a better era for the planters, as evidenced by the dramatic increase in the colony's stock of neat cattle during the 1620s and 1630s.

Things got off to a strong start in 1621 when Daniel

Gookin shipped eighty head of cattle to the colony.¹⁹¹ In November Gookin himself arrived "with fifty men of his own, and thirty passengers,...with all sorts of provision and cattle, and planted himself at Newports-News."¹⁹² For the settlers this boded well. A resident stock-merchant would be a reliable source of cattle, while competition between Gookin and the Cork Company might drive prices down. The colony seemed poised on the brink of prosperity, causing one planter to affirm that "any laborious honest man may in a short time become rich in this country," an illusion that was swiftly shattered.¹⁹³

In 1622 a new cloud appeared on Virginia's horizon in the form of a native uprising. A massacre in March of that year claimed the lives of 347 settlers, dealing the colony a crippling blow. Forced to flee their outlying plantations, the English withdrew to a few defensible positions. Livestock and other belongings, abandoned by the planters in their haste, were lost to the Indians. John Smith described the colonists' plight:

Now for want of boats, it was impossible upon such a sudden to bring also their cattle, and many other things, which with much time, charge and labor they had then in possession with them; all which for the most part at their departure was burnt, ruined and destroyed by the savages.¹⁹⁴

Following the massacre the colonists reported heavy losses of livestock, so that "he that had 40 hogs about his house has [now] one or two."¹⁹⁵ In 1623 colonist William Rowsley reported paying eighteen pounds for one cow and "there is no more to be had."¹⁹⁶ In light of these

conditions Governor Francis Wyatt issued a new edict making the theft of domestic stock a felony punishable by death (if the value exceeded twelve pence), or whipping (if the value was under twelve pence). These penalties were the same as those imposed in the mother country. However, the planters were warned that "though in England the value of some of these tame things is far less,...yet here they are of far higher rates, by reason of their scarcity, and therefore will be found punishable with no less than death."¹⁹⁷

The loss of their painfully accumulated stores meant that the planters faced shortages and starvation. Richard Norwood, arrived at Jamestown in April 1623 to find "victuals scarce and dear."¹⁹⁸ William Rowlesley wrote to his brother in England begging for a hogshead of beef "for here is not a bit of flesh to be had at any rate."¹⁹⁹ Lady Wyatt also requested aid from friends in England, explaining that "since the Indians and we fell out we dare not send a-hunting."²⁰⁰ The situation in Virginia was grim in 1622 and 1623.

The colony's future was once more in doubt, but John Smith, sometime governor and captain of Virginia, saw a bright side to this misfortune. Smith pointed out that "now we have just cause to destroy [the Indians] by all means possible:...now we may take their own plain fields and habitations, which are the pleasantest places in the country."²⁰¹ He also predicted an increase in the planters' livestock "for [the Indians] have used to kill eight in ten

more [swine and goats] than we."²⁰² The settlers soon adopted Smith's program, driving off the aborigines and leaving the lower peninsula of Virginia in English hands by 1630.

One local bard captured the colonists' spirit in a ballad entitled "Good News from Virginia":

The Indians fly and we I hope
 shall nere more want endure
 For those that put their trust in God
 shall of his Grace be sure
 Now deer and swine and turkeys
 will daily so increase
 That fair Virginia will I hope
 prove plentiful by peace.²⁰³

In her third decade Virginia proved plentiful indeed.

The settlers' livestock recovered quickly from the effects of the uprising. John Smith estimated that the planters had two thousand head of cattle by 1624, adding that "no family [in Virginia] is so poor, that hath not tame swine sufficient."²⁰⁴ Thomas Young, writing from Virginia in 1634, noted that "ordinary planters...of the better sort" were well supplied with pork, kid, poultry, and dairy products.²⁰⁵ In the 1630s Virginians began exporting salt meat and livestock from Jamestown.²⁰⁶ Compared to the rest of North America, the Chesapeake was well stocked with domestic beasts.

Legislation reflected the changing status of Virginia's livestock; as the number of domesticates in the area grew, laws to encourage their breeding were relaxed. An act of 1630 banned the slaughter of female breeding stock, but allowed the colonists to butcher male stock and female

animals "such as are either past breeding, or are likely to die by some infirmity."²⁰⁷ Beginning in 1640, the Virginia Assembly permitted planters to export every seventh head of cattle "to New England or other neighboring colony."²⁰⁸ In 1642 all restrictions on the sale of cattle, goats and swine were dropped.²⁰⁹ Gradually the colonial government abandoned the role of nursemaid to Virginia's domestic stocks.

In a similar vein, the acts regarding hog-theft were modified in 1647. Legislators who met that year deplored existing conditions, in which hog-stealing was "a general crime usually committed and seldom or never detected or prosecuted in this colony."²¹⁰ To remedy the situation, they reduced penalties for hog-stealing and instituted rewards for informants who helped convict hog-thieves. An earlier act making hog-theft a felony was also repealed.²¹¹ The courts, no longer preoccupied with safeguarding breeding stock, now focused their attention on protecting the rights of property owners.

Determining the owners of free-ranging stock was a major problem. To help identify their animals, planters registered their livestock and recorded transfers of ownership in the county courts. The first deed of sale surviving from Accomack County in eastern Virginia was for three head of cattle.²¹² Early records were quite simple: owners described their beasts by age, sex, color and distinguishing features, such as "black cow...with a broad

and broken head... wild in the woods."²¹³ Later descriptions became more complex, as in William Kendall's mark of cattle "cropped on both ears, slit on left ears and some of them branded on the horn and buttock with WK."²¹⁴ The use of distinctive brands to identify livestock was standard practice in Virginia by the mid-seventeenth century.²¹⁵

In the second half of the century the colonial legislature grew increasingly concerned with compensation for damages by and to domestic beasts. Fence laws protected the interests of stock owners, making it the responsibility of planters to keep grazing beasts out of their crops.²¹⁶ Settlers were instructed to build fences four and a half feet high and "close down to the bottom" around their cleared fields.²¹⁷ Colonists were barred from hunting domestic animals on unfenced land, and to further discourage manhandling of livestock any planter who killed or mortally wounded a domestic animal in the process of removing it from unfenced land was to forfeit twice the value of the dead beast.²¹⁸ In contrast, livestock owners were liable for damages by their beasts to private property only after two court-appointed inspectors determined that an adequate fence had surrounded the land upon which the animals trespassed.²¹⁹

Wild hogs, cattle, and horses, descendants of domestic livestock that had reverted to nature, were another complication. Wild swine appeared in the Chesapeake as

early as 1623, when one colonist wrote, "we account of them as of the deer in Virginia, things belonging to no man."²²⁰ Wild horses were present in the colony by 1665, when eleven people were fined for horse hunting on the sabbath.²²¹ John Clayton reported cattle "bred from some that have strayed, & become wild" in Virginia in the 1690s.²²² In the second half of the seventeenth century references to wild swine dwindled, while those to wild horses become more frequent.²²³

The Virginia Assembly regulated the hunting or taking up of these naturalized species. An edict of 1632 differentiated between wild fauna and domestic stock that had grown wild.²²⁴ Settlers were given free rein to hunt deer and other native beasts, but prohibited from killing wild hogs without license from the governor. Deer, a native species, were treated as a public resource or spoils of war, available to all colonists. Swine, an imported species, were treated as private property, belonging either to individual planters or by default to the colonial government.

Gradually the distinction between native and imported animals become blurred. An act of 1643 allowed "such persons that did adventure to recover cattle,...lost to the owners, [to] freely enjoy the said cattle."²²⁵ This was followed by a series of laws in the 1660s and 1670s requiring colonists to seek the proper owners of any horses or cattle they captured.²²⁶ These laws did not discourage

wild-horse hunting, which according to Robert Beverley was a "sport, which the young people take great delight in."²²⁷ However, the problem of semi-feral animals appears to have moved inland with the frontier in the late seventeenth and early eighteenth centuries.

Native predators were yet another headache for the colonists. Beginning in 1632 the Virginia Assembly awarded bounties for the destruction of wolves, "[which] have multiplied and increased exceedingly to the great loss and decrease of cattle and hogs."²²⁸ Originally, planters who killed a wolf and brought in its head were granted the privilege of killing a wild hog.²²⁹ In 1646 the bounty was changed to one hundred pounds of tobacco "to be raised out of the county where the wolf is killed."²³⁰ However, this system proved unsatisfactory and in 1658 the legislature turned the regulation of wolf-bounties over to county officials.²³¹

The settlers also used bounties to entice Indians into hunting wolves. Authority for setting these awards passed back and forth between the General Assembly and county officials.²³² Perhaps the most amusing edict of Virginia's colonial era was issued in 1655, when the assembly decreed that for every eight wolves' heads brought in by the Indians one cow should be delivered to their leader at public charge. The legislators asserted that "This will be a step to civilizing [the Indians] and making them Christians."²³³ The faith professed by these lawmakers in the humble cow

caused historian Philip Bruce to note that "never before or since has so high a compliment been paid to her capacity for accomplishing good, as in this expression of confidence in her power to change the wild nature of the Indian by the softening influence of her presence."²³⁴

The colonists probably overestimated the missionizing ability of the cow, but they were well justified in placing a high value on their livestock. Cattle were particularly suited to the frontier environment. They adapted easily to open-range grazing, which required minimal amounts of human labor, an important consideration in seventeenth-century Virginia with its chronic labor shortages. The animals foraged for themselves, relieving planters of the need to cut fodder and fence pastures for their stock. The first mention of open-range grazing in Virginia came in 1611: "The kine all this last winter, though the ground was covered most with snow, and the season sharp, lived without other feeding than the grass they found."²³⁵

Initially the Virginia Company sent shipments of cows to provide the adventurers with fresh milk, which was lauded by Thomas West as "a great nourishment and refreshing to our people, serving also (in occasion) as well for physic as for food."²³⁶ A smaller number of bulls were imported, primarily for breeding purposes. Virginians began harnessing their cattle for use as draught animals as early as 1617.²³⁷ Plowing with oxen significantly increased the planters' agricultural production. As the century wore on

and stocks of cattle in the Chesapeake grew, the colonists were able to indulge their taste for beef.²³⁸

Hogs, goats and poultry also contributed to the colonial larder. Among the provisions recommended for Virginia-bound immigrants were sheep and goats to supply milk on the voyage over.²³⁹ Goats and swine furnished the planters with meat, while poultry added eggs to their diet. According to a letter of 1634:

Virginia abounds with very great plenty insomuch as in ordinary planters houses of the better sort we found tables furnished with pork, kid, chickens, turkeys, young geese, capons and other such fowls as the season of the year affords, besides plenty of milk, cheese, butter and corn, which latter almost every planter in the country has.²⁴⁰

Livestock played an important role in alleviating the food shortages that had plagued the first years at Jamestown.

Promotional pamphlets worked to counter tales of privation and attract new immigrants to the region. They spread the news that Virginia was "exceedingly replenished with neat cattle, hogs, goats and tame fowl."²⁴¹ Which led one writer to conclude "It must needs follow then that diet cannot be scarce,...and that such plenty of cattle and hogs are everywhere, which yield beef, veal, milk, butter, cheese and other made dishes, pork, bacon and pigs."²⁴² These reports served as powerful bait to lure Britain's meat-starved lower classes across the Atlantic.

By the 1630s Virginians had enough livestock to begin their own export trade. Ships calling at Jamestown could count on supplies of fresh and salt meat for sale; a

flourishing business grew up providing barrels of salt meat to New England and the Caribbean.²⁴³ Although the export of domestic animals was limited, the colonists also sent breeding stock to Massachusetts, Maryland, and the Carolinas.²⁴⁴ This commerce in meat and livestock was especially important to the planters during the frequent depressions in the tobacco trade. Abundant supplies of domestic animals made the Virginia colonists self-sufficient in food production and furnished a critical second leg for their economy to stand on.

CHAPTER IV
INDIANS AND LIVESTOCK: THE IMPACT OF
IMPORTED ANIMALS UPON THE NATIVES OF VIRGINIA

By the time the English settled Virginia, European contacts had already altered the ecology of the region. European ships arrived in the Chesapeake Bay long before the founding of Jamestown in 1607. A map executed by German engraver Theodor de Bry shows more than a passing familiarity with the coast of Virginia.²⁴⁵ Archeologist William Jack Hranicky suggests that the Spanish outpost of San Miguel de Guadalupe (1526-1527) was located on the Chesapeake Bay.²⁴⁶ Both Hranicky and ethno-historian Christian Feest believe that the Ajacan Mission (1570-1571) of Father Juan Batista Segura was planted in tidewater Virginia.²⁴⁷ These enterprises failed to establish permanent settlements, but they did have some impact on the region.

Sixteenth-century Spanish missionaries and conquistadors carried a variety of fevers to South and Central America, with disastrous results for the local Indians. The aboriginal population of Mexico declined by 90% in the first hundred years of European contact.²⁴⁸ Census materials show a decrease of 80% among the

Algonquians of Virginia between 1608 and 1669.²⁴⁹ Smallpox proved particularly dangerous for the Indians. John Lawson, travelling through North Carolina in the early eighteenth century, was told of entire villages wiped out by this disease.²⁵⁰

Smallpox, originally an Old World infection, appeared in the Caribbean islands in 1518 or 1519 and crossed to the Central American mainland soon after, killing thousands of natives.²⁵¹ Measles, chickenpox, influenza, and typhus followed in rapid succession.²⁵² These diseases could have been introduced into Virginia by Spanish explorers as early as 1526. The first documented epidemic in colonial Virginia occurred in 1586 in the vicinity of Roanoke Island, in present day North Carolina. That year Thomas Harriot, a member of the Grenville expedition from England, observed that "the [natives] began to die very fast, and many in short space."²⁵³

Harriot did not name the disease which struck the Indians or give its symptoms, but he did chronicle its spread. He noted that the sickness was new to the Indians, who "neither knew what it was, nor how to cure it."²⁵⁴ It followed the explorers through the area, killing large numbers of aborigines, yet "there was no man of [the English] known to die, or that was especially sick."²⁵⁵ Harriot's account strongly suggests that the disease was caused by a contagious infection of Old World origin. This disease could have been carried by Grenville's men, who

would have been largely immune to its ill effects because of their previous exposure.²⁵⁶

Disparity between European and Indian mortality rates was a characteristic feature of sixteenth and seventeenth-century epidemics in the New World.²⁵⁷ According to eyewitnesses the aborigines died "in heaps like bedbugs" or "rotten sheep," while the colonists experienced a relatively light mortality.²⁵⁸ Europeans and Indians alike interpreted this disparity as a sign of divine favor toward the colonists.²⁵⁹ When native priests and physicians were unable to curb the epidemics, many aborigines abandoned their traditional religion. Some, like the werowance Wingina, rushed to befriend the English in a vain attempt to halt the newly imported diseases.²⁶⁰

It is impossible to say exactly how many Indians perished in the 1586 epidemic near Roanoke. Harriot wrote that "in some towns about twenty [died], in some forty, in some sixty, & in one six score, which in truth was very many in respect of their numbers."²⁶¹ A census of Virginia's Algonquian villages, conducted by John Smith in 1608, gives them a mean population of 243-249, and a median population of 135-165.²⁶² Assuming that the Algonquians of North Carolina lived in similiarly sized villages thirty years earlier, this yields a mortality rate of 10-30% for these aborigines in the 1586 epidemic. This 10-30% figure, although highly speculative, is well in line with recorded death rates for outbreaks of smallpox and influenza in

previously unexposed populations.²⁶³

Other Old World infections entered Virginia via the English settlement at Jamestown. In March 1618 Samuel Argall, governor of the colony, reported "a great mortality among us, far greater among the Indians."²⁶⁴ This was followed by an epidemic in 1623, which killed 500 colonists, and the introduction of malaria into the Chesapeake sometime before 1650.²⁶⁵ The cumulative effect of imported diseases upon the natives was devastating. Virginia's Algonquian population fell from an estimated 14,000 to 22,000 in the early 1600s, to a mere 3,000 or 4,000 toward the end of the century.²⁶⁶

The colonists' livestock furthered this depopulation. Agricultural texts make it clear that sixteenth and seventeenth-century English domestic animals carried a full complement of infectious diseases.²⁶⁷ In The Columbian Exchange (1972), historian Alfred Crosby argues that the decline of South America's llamas and alpacas after the Spanish conquest was due in part to the diseases of imported sheep.²⁶⁸ Transfers of infections from domestic to wild animals have been recorded: in the 1890s an outbreak of rinderpest spread from domestic cattle to wild antelope and buffalo, seriously depleting the game supply in South Africa.²⁶⁹ A reference by Samuel Argall in 1618 to "a murrain among the deer" hints at a similiar epizootic among the animals of Virginia.²⁷⁰

In addition, domestic stock can serve as a conduit for

human infections. Lice, ticks and many types of worms, infest both human and animal populations.²⁷¹ Influenza A viruses affect swine, poultry, and horses, as well as human beings and may be able to jump from one host species to another.²⁷² Bovine tuberculosis can be transferred directly from cattle to human beings, via infected milk.²⁷³ Other diseases of livestock, such as cowpox and Newcastle disease, which provoke only mild symptoms in modern human populations, may have struck earlier populations much harder, but this is pure speculation.

American Indian myths support the contention that animals spread infections among the aborigines. Folktales of the neighboring Cherokee people, recorded by ethnologist James Mooney in the late nineteenth century, contain a well articulated belief in a causal relationship between animals and human illness.²⁷⁴ In these stories animals are the authors of human disease. They inflict illness as punishment for hunting and as a means of limiting the human population. These legends could be survivals of pre-Columbian Indian lore or direct outgrowths of the colonial experience.

John Lawson, who visited North Carolina in the early eighteenth century, observed:

All the Indians carefully preserve the bones of the flesh they eat and burn them, as being of [the] opinion that if they omitted that custom the game would leave their country, and they should not be able to maintain themselves by their hunting.²⁷⁵

Lawson and Robert Beverley also recorded Indian rituals celebrating the first fruits of the hunt, without which the natives thought that hunters "would never after be fortunate in hunting."²⁷⁶ According to ethnohistorian Calvin Martin, the Ojibway, an Algonquian people of the Great Lakes region, had similar customs.²⁷⁷ Early visitors to the Chesapeake region did not note specific rituals for placating animals, however, a general belief in the ability of animal spirits to take revenge upon human beings seems to have been common among the Algonquian tribes.

Belief in the power of wild animals to withhold game from hunters who killed wantonly was grounded in reality. Over-hunting could, and did, reduce supply of key game species below what the Indian needed to survive. William Cronon has described the decline of New England's white-tailed deer in Changes in the Land (1983), while the drop in Great Lakes' beaver stocks is chronicled by Calvin Martin in Keepers of the Game (1978).²⁷⁸ Increased hunting by natives involved in the European furtrade was an important factor in the decline of these species. In the Chesapeake the furtrade centered on deerskins.²⁷⁹

Deer herds in eastern Virginia appear to have been seriously depleted over the course of the seventeenth century. Thomas Harriot sighted "great store" of deer near Roanoke in 1586.²⁸⁰ Thirty years later John Smith reported many deer "in the deserts towards the heads of rivers" but few below the fall line.²⁸¹ William Strachey, who visited

Jamestown in 1610-1611, stated that the natives often killed six to fifteen deer in a single morning of fire-hunting.²⁸² In contrast, a fire-hunt by colonial surveyors in the backwoods of Virginia yielded only four deer in 1728.²⁸³

Open-range stock-raising by English colonists contributed to the decline of game species in the Chesapeake. As early as 1611 imported cattle were turned loose to graze near Jamestown.²⁸⁴ By the 1620s swine and goats ran wild in the woods and marshes of tidewater Virginia.²⁸⁵ Semi-feral livestock moved inland ahead of the English, upsetting the ecological balance of the region. Indian hunting grounds in eastern Virginia were overrun with imported animals.

The colonists' livestock competed with local game for forage. Cattle thrived on the grasses and browse that supported deer and sheltered wild fowl.²⁸⁶ Hogs consumed the mast, tubers, and berries that bears preferred; goats and horses destroyed fruit trees and bushes.²⁸⁷ Gradually native species lost ground to the newcomers, paving the way for colonial expansion.

Free-ranging livestock also invaded the Indians' unfenced fields, foraging on the natives' crops. In 1659 the Indian Norris complained to the Accomack county court that "his corn was eaten up by the neighbors' cattle."²⁸⁸ The Choptanks, an Algonquian people of nearby Maryland, were more outspoken, asserting that "the English do daily encroach upon them & even sit down amongst them in their

clear fields with their cattle & hogs destroying their corn without which they cannot subsist."²⁸⁹ The queen of the Portobaccos lamented that "the stocks of cattle and hogs of the English yearly destroy their cornfields by which means they must of necessity come to famine."²⁹⁰

Threatened with the loss of their corn crop, the Indians of tidewater Virginia responded by attacking the offending livestock. Large numbers of the colonists' cattle and hogs were killed or lost in the native uprising of 1622.²⁹¹ Reports of Indians molesting planters' hogs began trickling into the legal records in the 1630s.²⁹² These complaints soon swelled to a flood; over the next three decades aborigines were variously accused of shooting, killing, and stealing the settlers' animals.²⁹³ The motivation for these attacks is rarely given in colonial records and can only be inferred from the context of the period.

The second quarter of the seventeenth century, between 1625 and 1650, was period of open hostilities and fierce competition between settlers and Indians for control of tidewater Virginia. The English strategy in this contest was to starve the natives out of the country. To this end the colonists mounted regular expeditions to burn the Indians' crops, and hunted freely to reduce game supplies. Free-ranging livestock assisted the settlers in their struggle to cut the aborigines' foodsupply. This alliance proved quite effective. By 1630 the lower peninsula of

Virginia was in English hands, and by 1650 most of the tribes living below the fall line had been reduced to tributary status.²⁹⁴

Time was running out for the Algonquians of tidewater Virginia. A 1669 census counted only 2,500 natives in the area, a mere twenty percent of the pre-contact population.²⁹⁵ The Occahannock Indians spoke for many groups in the Chesapeake when they complained in 1699 that the "unkind and unjust usage of them by the English hath reduced them to a very great poverty & necessity."²⁹⁶ The disheartened remnants of these tribes soon fell prey to assimilation. During the second half of the seventeenth century a growing number of the colony's aborigines took up English customs, including livestock husbandry.

Indirect evidence suggests that stock-raising by these Indians was, for the most part, an act of desperation. In New England's Prospect (1634) colonist William Wood noted that the Algonquians of Massachusetts Bay loathed hogs "whose thievery [of the Indians' stored corn] they hate as much as their flesh."²⁹⁷ As late as the 1730s and 1740s furtrader James Adair found that the Cherokee "still affix[ed] vicious and contemptible ideas to the eating of swine's flesh." According to Adair "swine eater" was "the most opprobrious epithet [the Cherokee] can use to brand [whites] with."²⁹⁸ Resistance to stock-raising by Virginia's natives can be inferred, but not proven, from these accounts.

The colonial legislature worked to encourage stock-raising by the aborigines. An act passed by the Virginia Assembly in 1655 authorized the award of one cow to native kings for every eight wolves that their tribesmen killed. The Indians' reaction to this largess went unnoted, but the assembly declared it "a step to civilizing them."²⁹⁹ More substantial evidence of native stock-raising appeared in 1674, when Indians who kept hogs were ordered to mark the animals and register their marks in town. This act was designed to end "mischief by the Indians" among the settlers' swine, especially on the south side of the James.³⁰⁰

Virginia's legislators need not have troubled themselves, for the problem soon disappeared along with the area's aboriginal population. The Algonquians of eastern Virginia were, for the most part, washed away by the tidal wave of change that engulfed the Chesapeake in the early seventeenth century. They had little opportunity to adapt to their changing environment and enjoy newly introduced resources, such as domestic livestock. The Iroquoian and Siouan tribes of the coastal plain and piedmont fared somewhat better in this respect. These peoples retained their autonomy well into the eighteenth century and learned to keep horses, as well as some cattle and hogs.

Originally Virginia's planters regarded horses as strategic items like guns, and a variety of edicts prohibited the sale or gift of these animals to natives.³⁰¹

Horses remained scarce and expensive in the Chesapeake throughout the first half of the seventeenth century.³⁰² However, during the 1660s the supply of horses increased dramatically.³⁰³ Soon herds of strayed horses were running wild in the backwoods of Virginia.³⁰⁴ With horses plentiful in the colony, nothing could prevent the aborigines from capturing and breaking wild horses, or bartering for fur-traders' mounts.

The first record of horse ownership among Virginia's Indians dates from the end of the seventeenth century. John Clayton wrote that the king of the Pamunkeys had acquired three or four horses in the 1690s, but Clayton considered this unusual.³⁰⁵ The practice of keeping horses spread quickly along the southern frontier. By the early eighteenth century John Lawson found that even the isolated Waxsaw and Saponi of North Carolina possessed horses.³⁰⁶

At this point the colony's Indians rarely rode their animals. William Byrd, who surveyed the Virginia-North Carolina boundary in 1728, first noted that the natives travelled only on foot, and then described the visit of some mounted Saponi to his camp. Byrd reconciled this apparent contradiction by adding that the visit was remarkable and "was certainly intended for a piece of state."³⁰⁷ Saddle horses served these Indians as status symbols, to be trotted out on ceremonial occasions. These animals offered few improvements over existing modes of travel and met no real need for the natives.

What these Indians did need was a method of moving skins for the European trade. According to John Lawson the Waxsaw used pack horses to carry slain deer home.³⁰⁸ The work of cooking or preserving the meat and processing raw hides into marketable commodities fell to the Waxsaw women. Thus the tribe's hunters, freed from the task of skinning and butchering carcasses in the field, were able to concentrate on stalking and killing game. These Indians' use of pack horses was a practical adaptation to the demands of the deerskin trade and to the changing conditions of life on the southern frontier.

Unfortunately for Virginia's Iroquoians this frontier was moving westward at a rapid pace. Some tribes migrated out of the path of encroaching colonists, while others sought desperately to stop the advance. In 1699 the Nottoway Indians appealed to the governor of Virginia to protect their fields from English planters and their woods from Tuscarora hunters.³⁰⁹ Apparently this effort was to no avail; the Nottoway may have been pushed out or simply died off, in either case they vanished from the record. By 1728, when William Byrd visited their village, the original inhabitants had been replaced by Saponis.³¹⁰

The Saponi of Nottoway Town were a mixture of Iroquoian and Siouan peoples with little in common but their increasingly distressed circumstances. They included members of the Meherrin, Nottoway, Occaneechi, Saponi, and Susquehannock tribes.³¹¹ Contact-period wars and epidemics

had reduced these aborigines to a fraction of their former numbers, forcing them to flee their homes and band together for mutual support. The experience of the Saponi--a sharp decline in population, followed by migration away from the English and consolidation with similiar native groups--was typical of many southern Indians in the seventeenth and eighteenth centuries.³¹² Territorial boundary lines became lost in this shuffle, tribal identities were blurred by convergence; some groups melted away gradually while others were swallowed up overnight.

These trends, affecting aborigines throughout the colonies, stepped up the pace of Anglo-Indian acculturation. One tangible sign of this acculturation was the diffusion of livestock husbandry among native American peoples. The most dramatic developments were in cattle and swine-herding, which increased tremendously during the eighteenth century. John Lawson purchased beef and pork from the Cape Fear Indians as early as 1708.³¹³ In 1714 the Chowan Indians complained that they had lost seventy-five hogs, a mare, and a colt while aiding the English in the Tuscarora War.³¹⁴ Horses remained popular with the southern tribes; James Adair reported that the Cherokee had "a prodigious number of excellent horses" by the mid-eighteenth century.³¹⁵

The burgeoning deerskin trade contributed to the spread of livestock husbandry in western Virginia. Adair and Lawson both met with backwoods traders who brought along horses, cattle, and swine for their personal use.³¹⁶ The

lure of European trade goods soon overcame the natives' objections to raising domestic animals for sale to white frontiersmen, but this commerce had its ups and downs. In the 1760s the Cherokee took to the warpath against the colonists and stopped keeping hogs for the "ugly white people."³¹⁷ However, by then damage was done, the aborigines had acquired a taste for beef and begun keeping their own stocks of cattle.³¹⁸

Open-range stock-raising, as practiced by the English settlers, did not appeal to native American peoples. The aborigines preferred to isolate their domestic beasts, rather than allowing them to roam freely as the colonists did. In coastal areas, such as Cape Fear, the natives confined their domestic stock to off-shore islands; inland tribes, like the Cherokees, resorted to penning their swine.³¹⁹ These arrangements protected unfenced fields and forests from the ravages of foraging livestock. American Indians did more than just copy the animal husbandry of their English neighbors; they selected and modified colonial stock-raising methods to suit their own needs.

CONCLUSION

Traditional western approaches to history, focusing on human beings, have obscured the role that non-human factors played in shaping history. Recently, the ecological crises of the twentieth century have prompted studies of environmental change in the past as well as the present. These studies, in turn, have emphasized the importance of biological as well as cultural factors in the European conquest of the Americas.

Domestic livestock were an essential part of the English colonization effort. The importation of European stock into Virginia was a major undertaking with significant consequences for aborigines and settlers alike. Domestic animals, although essential to the European way of life, were virtually unknown in pre-Columbian North America. The introduction and successful propagation of cattle, horses, hogs, goats, and sheep in Virginia was a coup for the English colonists and a serious blow to the local Indians.

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311. Rights, p. 105.
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